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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,185	02/28/2002	Kazumasa Ueda	2185-0621P	4939

2292 7590 12/04/2003

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EXAMINER	
UMEZ ERONINI, LYNETTE T	

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/084,185	UEDA ET AL.	
	Examiner	Art Unit	
	Lynette T. Umez-Eronini	1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/28/02*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2/28/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Wang et al. (US 6,177,026 B1).

Wang teaches, "The chemical mechanical polishing slurry is useful alone or in combination with other chemicals and abrasives for polishing metal layers and thin-films associated with semiconductor manufacturing. More particularly this invention concerns a chemical mechanical polishing slurry that is especially adapted for polishing multiple metal layers and thin-films where one of the layers or films is comprised of . . . **tantalum** or . . . or **tantalum nitride**" (column 1, lines 12-19). "Other well known polishing slurry additives may be incorporated into the chemical mechanical polishing slurry of this invention. . . . Useful inorganic additives include nitric acid (same as applicant's polishing accelerator) . . . ammonium salts (same as applicant's chelate resin particle), . . ." (column 9, lines 28-30 and 34-37). Wang also teaches, "Useful stabilizers include . . . organic acids (e.g., . . . EDTA (same as applicant's chelate resin)), . . ." (column 10, lines 11-15). The above reads on,

A metal polish composition comprising a chelate resin particle and an inorganic particle, **in claim 1**;

wherein the composition further comprises a nitric acid polishing accelerator, **as in claims 2-4**;

wherein the chelate resin particle is a chelate resin particle having a functional group containing at least one atom selected from the group consisting of nitrogen atom, **in claim 5**, an aminocarboxylate group, **in claim 6**, having at least one counter ion selected from the group consisting of a hydrogen ion and ammonium ions represented by the following general formula: $+NR_1R_2R_3R_4$ wherein, R_1, R_2, R_3, and R_4, each independently represent a hydrogen atom, **in claim 7**, and wherein R_1, R_2, R_3, and R_4 represent a hydrogen atom, **in claim 8**.

The said aforementioned also reads on,

wherein the metal is a metal containing tantalum, **in claim 16**; and

wherein the metal is a metal tantalum or tantalum nitride, **in claim 17**.

The said above further reads on,

A polishing method of a metal with the metal polish composition according to claim 1, **in claim 18;** and

A polishing method of a metal film of a semiconductor device with the metal polish composition according to claim 1, **in claim 19**.

Since Wang teaches a polishing slurry that comprises the same components as those of the claimed invention, then using Wang's slurry in the same manner as the claimed invention would inherently result wherein the chelate resin particle is a particle having an average particle size of 1.0 μm or less, **in claim 9**; wherein the zeta potential of a chelate resin particle and the zeta potential of an inorganic particle are in the same

sign, **claim 10**; and wherein a ratio of average particle sizes (A/B) is 30 or more when the average particle size of chelate resin particles is represented by A and the average particle size of inorganic particles is represented by B, **claim 12**.

Wang teaches, "It is preferred that the metal oxide abrasive is silica . . ." (column 8, lines 17-18). "Preferably, the metal oxide abrasive is incorporated into the aqueous medium of the polishing slurry . . . The aqueous dispersion of metal oxides may be produced utilizing conventional techniques, such as slowly adding the metal oxide abrasive to an appropriate media, for example, deionized water, to form a colloidal dispersion" (column 8, lines 19-28). The aforementioned reads on,

wherein the inorganic particle is colloidal silica, **in claim 11**.

Wang teaches, "The chemical mechanical composition of the invention includes at least one oxidizing agent" (column 4, lines 30-31). Most preferred oxidizing agents are . . .hydrogen, . . . and mixtures thereof" (column 5, liens 1-5), which reads on,

wherein the composition further comprises an oxidizer, **in claim 13** and the oxidizer is hydrogen peroxide, **in claim 14**.

Wang also teaches, "An aqueous chemical polishing composition . . ." (claim 1) and "It is desirable to maintain the pH of the CMP slurry of this invention with in a range of from about 2 to about 11, . . . The pH of the CMP slurry of this invention may be adjusted using any known acid, base, or amine" (column 10, lines 28-33), which encompasses an aqueous solution that has a pH of 3 to 9 when made into an aqueous solution, **in claim 15**.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 703-306-9074. After December 10, the examiner can be reached on 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 703-305-2667. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Lynette T. Umez-Eronini

ltue

December 1, 2002